April 2021

Assessment Questions and Answer Key

Center for Urban Resilience

Module 4 Assessments

Multiple Choice

1. Garbage can be defined as material that is
    a. Useful to someone else
    b. Dangerous to people's health
    c. Considered useless or disposable
    d. Smelly and unsightly

2. Garbage that I produce has an impact on
    a. Only the local environment
    b. The local and regional environment
    c. T*he local, regional, and national environment*
    d. Only the national environment

3. Which of the following is biodegradable?
    a. Glass
    b. Plastic
    c. Styrofoam
    d. Leather

4. The most common form of waste disposal is
    a. Ocean dumping
    b. L*andfills*
    c. Incineration
    d. Recycling

5. Leachate is
    a. W*ater from a landfill*
    b. Ash left over from incineration
    c. The boat used to dispose garbage
    d. Type of recyclable plastic

6. Garbage disposal often disproportionately effects
    a. Industrial Managers
    b. High Income Residents
    c. L*ow Income Residents*
    d. Store Owners

7. NIMBY stands for
    a. Nothing Is Meant By Yesterday
    b. Never Increase Months Before Years
    c. Near Indigo Maximizes Bluish Yellow
    d. N*ot In My Back Yard*

8. The Law of conservation of matter states that

a. Energy can be neither created nor destroyed
b. M*atter can be neither created nor destroyed*
c. Energy flows and matter cycles
d. All matter is created then destroyed

9. Which of the following is not a common currently used option for dealing with municipal waste?
    a. Incineration
    b. Generation of electricity
    c. G*eneration of crude oil*
    d. Transport to land fill
    e. Ocean dumping

10. Which of the following is not considered a heavy metal?
    a. Mercury
    b. Lead
    c. Cadmium
    d. Calcium

11. E-waste means
    a. Electronic waste
    b. Energy waste
    c. Effluent waste
    d. Environmental waste

12. Where do most electronic devices get recycled?
    a. Locally
    b. They get shipped to another state
    c. Many get shipped to China and Nigeria
    d. Electronic devices do not get recycled

13. Hazardous Waste can be a
    a. Lquid
    b. Solid
    c. Gas
    d. All of the above

14. Hazardous waste are
    a. Corrosive and Flammable
    b. Reactive
    c. Toxic
    d. a and b only
    e. a, b, and c only

15. Synthetic Organic Compounds are toxic because they can be absorbed by the skin and act like
    a. Mutagens
    b. Teratogens
    c. Endocrine disrupters
    d. Carcinogens
    e. A*ll of the above*

16. All of the following are examples of hazardous waste except
    a. Diapers
    b. Batteries

c. E-waste
d. Motor oil
e. Paint

17. LD50
    a. Lowest common denominator of 50
    b. D*osage required to kill 50% of a population*
    c. Dosage required to kill 100% of a population
    d. Time required to kill 50% of a population

18. Congenital mercury poisoning is passed
    a. To people from the food they eat
    b. To people from exposure to lead paint
    c. F*rom an infected mother to her unborn child*
    d. From a producer to a primary consumer

19. Phytoplankton are an example of
    a. Secondary consumer
    b. Tertiary consumer
    c. Primary consumer
    d. P*rimary producer*

20. In the following food chain, which of the following is likely to have the highest levels of mercury
    a. Zooplankton
    b. Clam
    c. China Fish
    d. Human

21. How many tons of solid waste do Americans generate each year?
    a. 240
    b. 240 thousand
    c. 240 million
    d. 240 billion

22. Which of the following is not a current source of lead in the environment?
    a. Car batteries
    b. Old paint
    c. Gasoline
    d. CRT Televisions

23. Which of the following substances is the most toxic to humans?
    a. Aspirin: LD50 200 mg/kg
    b. Sugar: LD50 30 g/kg
    c. C*affeine: LD50 140mg/kg*
    d. Chlorine Bleach: LD50 850 mg/kg

24. Surfaces in cities tend to be more impermeable than the surrounding landscape. This results in increased _____ and increased hazardous wastes ending up in aquatic ecosystems.
    a. Infiltration
    b. Precipitation
    c. Evaporation
    d. Run-off

25. Which of the following lead levels is considered unhealthy?
    a. 5 mcg/dL
    b. 2 mcg/dL
    c. 10 mcg/dL
    d. 15 mcg/dL

26. Which of the following may be the result of exposure to lead?
    a. Digestion problems
    b. Brain damage
    c. Hyperactivity
    d. All of the above

27. Lead mimics which essential mineral in the body?
    a. Zinc
    b. Copper
    c. Vitamin C
    d. Calcium

28. Which one of the following may reduce storm water runoff pollution?
    a. Washing your car while it is parked on the street
    b. Picking up your pet's waste from the ground
    c. Watering a grassy area that has recently been fertilized
    d. N*ot fixing an oil leak from your car in your driveway*

29. All of the following will reduce or help prevent pollution from storm water runoff **except**
    a. Retention pools
    b. Flat pavement
    c. Grass buffers
    d. Wetlands

30. The three "R"s stand for
    a. Reduce, Reuse, and Recycle
    b. Reduce, Remediate, and Re-educate
    c. Reduce, Reprocess, and Rectify
    d. Radishes, Roast beef, and Raisins

31. In which country is the rate of waste an individual generates per day the highest?
    a. Japan
    b. United States
    c. United Kingdom
    d. Iceland

32. Which type of single serving packaged drink style takes up the most space in the landfill?
    a. Drink box
    b. Aluminum can
    c. Glass bottle
    d. Steel can
    e. Plastic bottle

33. Which of the following methods can be used to prevent additional garbage in the landfill?
    a. Reduce
    b. Reuse
    c. Recycle

d. Compost
e. All of the above

Open Response

1. Describe an important event in the history of garbage and explain why it is important.
2. List three possible methods of dealing with municipal waste. Describe one drawback of each method.
3. Explain what happens to electronic waste after we've stopped using it.
4. What is a Life Cycle Analysis (LCA) and why is it important to conduct this process on the products we use?
5. Agree or disagree with the following statement: "Anything can be considered toxic material" Back your claim up with evidence.
6. Explain in your own words what Biomagnification means. Give an example of biomagnifications.
7. Why are the dosages for children's medicine different than the dosages for adults?
8. You are hired to lead a discussion about what lead poisoning is and why it is hazardous to humans. What would you tell your audience?
9. Lead poisoning in children is particularly harmful given lead's effects on the human body. How are children exposed to lead? What are the effects of lead poisoning? How might you lessen children's exposure to lead?
10. What is storm water runoff? Why are we concerned with such given waste disposal?
11. List two Best Management Practices to eliminate or reduce storm water pollution. For each describe how the BMP specifically eliminates or reduces such pollution.
12. How can we, as individuals, reduce the pollution of storm water runoff?
13. How is polyester fleece produced? Explain.
14. Which companies are making fleece products by using recycled materials?
15. What is composting? How does composting help to break down materials and reduce the amount of solid waste disposed of annually by American families?
16. Of the three R's (reduce, reuse, recycle) which is the most important measure people can take to decrease the amount of solid waste content? Why?
17. How might you convince your family to reduce, reuse, and/or recycle? Be specific about which method (reduce, reuse, or recycle) that your family would try and how they would do it.
18. How might you motivate your neighbors to recycle more?
19. Name three things that you have thrown away recently that could be reused or recycle? Discuss why you threw them away as opposed to reusing or recycling them.

Module 4 Assessments Answers

Multiple Choice

1. c
2. c
3. d
4. b
5. a
6. c
7. d
8. b
9. c
10. d
11. a
12. c
13. d
14. e
15. e
16. a
17. b
18. c
19. d
20. d
21. c
22. c
23. c
24. d
25. c
26. d
27. d
28. d
29. b
30. a
31. b
32. c
33. e

Open Response

1. Could include things like the Clean Water Act, Clean Air Act, Marine mammal protection Act, Endangered Species Act, Love Canal, Rachel Carson's Silent Spring.

2. Landfills- take up a lot of space, land becomes toxic
   Incineration- releases toxic chemicals into the air
   ocean dumping- harms ocean ecosystems
   recycling- not all waste is currently economically feasible to recycle, requires consumer participation
   Most electronic waste is shipped over seas because it is too costly too recycle the materials domestically. Countries like China and Nigeria don't have as strict environmental laws.
3. LCA examines the full life cycle of a product including where it goes once it becomes obsolete. It is important that manufacturers and consumers take responsibility for the full life cycle of a product and factor in the economic and environmental cost of disposal.
4. Answer should include discussion of toxicity and dosage. Anything can be considered toxic material if there is enough of it present to cause harm to an organism. Evidence could include examples such as herbal tea is toxic to brine shrimp at certain concentrations or substances such as aspirin or acetominophen are toxic if you take enough of it.
5. Biomagnification is the process by which toxins, such as lead or mercury, build up in the bodies of organisms as you move higher up the food chain. An example would be the build up of mercury in the bodies of humans and tertiary consumers in the Minimata Bay ecosystem.
6. Toxicity is relative to body size. Children are smaller than adults so a smaller amount of a medicine is necessary and consequently a smaller amount could be toxic to them.
7. Lead is a toxin that gets stored in our bodies. It is not easily eliminated. Lead mimics calcium and is able to cross the blood brain barrier can lead to neurological damage and learning disabilities especially in children.
8. A. lead paint, toys, breathing lead dust; B. learning disabilities; C. eliminate lead paint and dust in your house
9. Storm water runoff is the water that moves along the impervious surfaces of the city streets ending up in sewers or local bodies of water. Any waste disposed of on the ground can get carried by the storm water run off and pollute local watersheds. Additionally, cities with Combined Sewer overflow systems, like Boston, dump raw sewage from peoples homes directly into local bodies of water.
10. Set up catch basins to filter and collect runoff before it gets into more sensitive habitats. Replace impervious surfaces with permeable surfaces. Restore wetlands, plant trees to filter pollution and absorb storm water runoff.
11. Don't dump dangerous chemicals on the ground, like motor oil or cleaning products. Properly dispose of electronics and abandonded vehicles.
12. Fleece is produced by spinning thin plastic threads and weaving them into a fabric.

13. Patagonia, NorthFace, Malden Mills
14. Composting is the process of collecting all of your household food scraps (except meats, dairy and fats) as well as your yard wastes and allowing them to decompose into a nutrient rich humus, which can be used in gardens and landscaping. Insects and bacteria break down the organic compounds yielding a natural nutrient rich fertilizer. The more you compost, the less waste that has to go to the landfill and less synthetic petrochemical fertilizer you will need to buy.
15. Reduce is the most important, because unless we change our habits and reduce the amount of stuff that we consume the garbage problem will not go away. Recycling and reusing things help however not nearly as much as a reduction in the amount of stuff we buy, consume, manufacture, and throw away.
16. Reduce and reuse: we could bring our own cloth shopping bags when we go shopping to reduce the amount of shopping bags we use. Recycle: We could recycle all of our plastic, paper, and glass.
17. Explain to them what happens to trash in our city.
18. Plastic cup at a restaurant because they did not have a recycling bin